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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,341	07/18/2003	Yuhua Tong	D/A2433	4810

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PATENT DOCUMENTATION CENTER
XEROX CORPORATION
100 CLINTON AVE., SOUTH, XEROX SQUARE, 20TH FLOOR
ROCHESTER, NY 14644

EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 05/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,341

Applicant(s)

TONG ET AL.

Examiner

Christopher RoDee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-16 and 18-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-16 and 18-40 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION***Claim Objections***

Claims 13, 15 and 16 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 13 does not properly further limit claim 1 because it recites the same amount of fluoropolymer as in claim 1. Claim 15 does not properly further limit claim 1 because the fluoropolymer can be dissolved in the resin binder in the dependent claim but must be dispersed in the binder of the base claim. Claim 15 does not properly further limit claim 1. Claim 16 specifies the same polymers for the binder as in claim 1, and consequently does not properly further limit claim 1.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3-7, 10, 12-16, 20, 21, 23, 26, 28-30, 36, 37, 39, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Kasuya *et al.* in US Patent 5,480,759.

Production Example 7 presents a photosensitive drum having a conductive support, an underlayer, a 0.5 μm thick charge generation layer, a 20 μm thick charge transport layer, and a 6 μm thick surface layer having charge transport functionality having 3 parts by weight of a fluorinated carbon fine powder, 5 parts of a polycarbonate binder resin, 0.3 parts of a perfluoroalkyl acrylate-methyl methacrylate polymer, 7.5 parts of a charge transporting

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triphenylamine, and between 0.1 and 10 ppm of FeCl (see col. 29, l. 6-34; col. 4, l. 4-9). This charge transport layer contains 31.6 % by weight of the polycarbonate, 1.9 % by weight of the perfluoroalkyl acrylate-methyl methacrylate polymer, and 47.5 % by weight of the charge transport compound. The amount of the FeCl is negligible in the charge transport layer. The combination of the charge transport layer and the surface layer meet the requirements of a charge transport layer and, in combination, have the requisite thickness of the claim 29. A method of imaging using the photosensitive drum is disclosed in Example 5 where an electrostatic latent image is developed and transferred to a receiver. Because the perfluoroalkyl acrylate-methyl methacrylate has the requisite monomeric structure of the claimed fluoropolymer, it appears that the fluoropolymer has the solubility required in instant claim 39.

Claim Rejections - 35 USC § 103

Claims 8, 9, 11, 18, 19, 22, 24, 25, 27, 28, 31-35, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasuya *et al.* in US Patent 5,480,759 320 in view of *Handbook of Imaging Materials*, to Diamond and Weiss, pp. 370-395 (previously cited) and 401-403 (newly cited).

Kasuya was discussed above. Additionally the reference teaches that an undercoat layer can contain an adhesive layer having a barrier (or blocking) function (col. 13, l. 11-18). Kasuya does not disclose the use of an adhesive layer and a hole blocking layer in the manner specified in claims 24 and 25, the belt of claim 27, or the metalized belts of claim 28. However, Diamond and Weiss teach that photoreceptor substrates often have a polymer interlayer that functions as a blocking layer and/or as an adhesive layer for the photosensitive layer that is subsequently coated (text p. 379). The reference also teaches the use of metalized polyethyleneterephthalate as an effective belt material (p. 379).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to coat an adhesive layer and/or blocking layer on the support of Kashimura and/or to use a metallized support because the text teaches that these are conventional layers in the art for their stated purposes.

Kasuya does not disclose the Type V hydroxygallium phthalocyanine or titanylphthalocyanine as the charge generation material but does disclose phthalocyanines (see col. 13, l. 36). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Type V hydroxygallium phthalocyanine or titanylphthalocyanine as the charge generation material because Diamond teaches that phthalocyanines are of significant commercial relevance with specific sensitivity wavelengths of commercial interest (p. 391, 394-395). Benzidine compounds are shown as effective charge transport materials in polycarbonate charge transport layers (pp. 391, 403). These well known compounds would have been obvious to use for their known function as they are ubiquitous in the art.

Kasuya also does not disclose the specific ratio of monomers in the block copolymer but it would have been obvious to optimize the amounts of the component monomer units in order to obtain the results of the invention. It would also have been obvious to optimize the length of the perfluoroalkyl chain in the block copolymer within the disclosure of the reference, such as a C₈ perfluorinated alkyl (i.e., 3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl or 2,2,3,3,3-pentafluoropropyl methacrylate), because the reference teaches that a C₄₋₁₆ alkyl can be used and the artisan would have found it obvious to use any specific length within the disclosure. The artisan would also have found it obvious to optimize the molecular weight of the perfluoroalkyl acrylate-methyl methacrylate polymer to values near those specifically disclosed, such as slightly less than 30,000 because the reference does not teach that the molecular

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weight must be limited to this explicit value and the artisan would expect similar results from the same polymer with similar molecular weight.

Conclusion

The previously applied grounds of rejection are withdrawn because of the amendments to the claims. The new art is applicable to the claims as now presented.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on most weekdays from 6:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**CHRISTOPHER RODEE
PRIMARY EXAMINER**

cdr
23 May 2005